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USDA United States Department of Agriculture

Forest Service

Northeastern Research Station

Resource Bulletin NE-141

Wood Removals and Timber Use in New York, 1993

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Abstract

Wood removals from New York timberlands in 1993 totaled 306 million cubic feet (ft^3). The largest component of removals was the volume of roundwood removed for industrial timber use – more than 132 million ft^3. This represents a slight decline from a similar study conducted in 1979 that showed that roundwood production exceeded 152 million ft^3. In 1993, about 56 percent was in sawlogs and 41 percent was in pulpwood and composite products, together accounting for 97 percent of roundwood production. About 126 million ft^3 of the roundwood harvested (95 percent of total production) was used within the state. The remaining 6 million ft^3 were exported to mills in surrounding states and Canada. However, 30 million ft^3 were imported, bringing total consumption in the state to 156 million ft^3. The primary softwood species group used was pine, followed by hemlock. The primary hardwood species groups used were hard maple, soft maple, select red oak, beech, ash, and black cherry. These groups accounted for 80 percent of total production. About 39 million ft^3 of logging residue and 85 million ft^3 of manufacturing residue were generated. Only 2 percent of the manufacturing residue was left unused.

The Authors

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Acknowledgments

We thank the primary wood-using mills that responded, and field personnel with the New York State Department of Environmental Conservation, Bureau of Forest Resources, for their assistance in obtaining information from the mills. Kevin Mullarkey and Beverly Grant, USDA Forest Service, provided technical assistance, and Vickie Sharon and Lynda Hines, Forest Service, provided administrative and secretarial services.

Manuscript received for publication 18 August 1997

Published by:

USDA FOREST SERVICE
5 RADNOR CORP CTR STE 200
RADNOR, PA 19087-4585

July 1998

For additional copies:

USDA Forest Service
Publications Distribution
359 Main Road
Delaware, OH 43015

Introduction

The Forest and Rangeland Renewable Resources Planning Act of 1974 and more recent legislation authorize the USDA Forest Service to conduct periodic forest resource inventories in all states. These inventories provide a wealth of information about the forest-related resources of the Nation. The Forest Inventory and Analysis unit (FIA) of the Northeastern Forest Experiment Station is responsible for conducting these inventories in New York and 12 other Northeastern States.

New York timberlands have been inventoried four times, most recently for 1993 (Alerich and Drake 1995). Previous inventories were conducted for 1952 (Armstrong and Bjorkbom 1956), 1967 (Ferguson and Mayer 1970), and 1979 (Considine and Frieswyk 1982). During these inventories, FIA monitors the nature and extent of the forest resources and describes the outputs and uses of these forest resources, also called wood removals.

Wood removals is the volume harvested or killed through logging, cultural operation (such as timber stand improvement), or land clearing. It also includes the volume neither harvested nor killed but growing on land that was reclassified from timberland to noncommercial forest land or nonforest land. This classification, which typically includes forest land such as parks and preserves, is termed status change.

A series of studies is carried out to quantify various components of wood removals. These studies include a canvass of all primary processing mills that received roundwood harvested in a state (including interstate shipments of wood), a utilization study of a sample of active harvesting operations within the state, a residential fuelwood survey of private forest-land owners, and an analysis of information developed from the standard resource survey on removals due to land-use change and status change.

With the assistance of the New York State Department of Environmental Conservation, we conducted these studies in New York for 1993 to quantify the components of wood removed from the state's timberlands. Estimates of the total volume of residential fuelwood use were provided by the New York State Department of Environmental Conservation (1996).

The canvass of primary wood-using mills for New York was conducted for calendar years 1992 and 1993. Primary wood-using mills are facilities that convert roundwood (logs, bolts, and other round, split, or chipped timber products) into commodities such as lumber, pulp, veneer, cooperage, and dimension products. The product may be used as manufactured or sent to a secondary wood-using mill for further manufacturing.

The New York State Department of Environmental Conservation assisted in compiling the list of manufacturers and in conducting the canvass. Data from pulp mills were obtained from an annual survey of all northeastern pulpwood producers (Widmann 1995). Mills outside of the state also were contacted to track cross-boundary traffic of wood products. Contacts included all mills in other states and Canada located near New York, as well as mills farther away in areas that are known users of wood from New York timberlands.

Each mill was first contacted by way of a questionnaire. Nonresponding mills were sent an additional questionnaire or were contacted by field personnel of the Department of Environmental Conservation. Mill owners/operators were asked to estimate the volume of roundwood they received during the specified calendar year by species or species group, product, and county or state where the roundwood was harvested. They also were asked to estimate the volume of residue generated during manufacturing.

Although the data were collected over a 2-year period, we used calendar year 1993. All mills contacted in 1992 were updated to 1993 based on change information asked of the mills contacted for calendar year 1993.

The utilization study that identified components of timber removals consisted of measurements taken at a sample of active harvesting operations throughout the state. More than 900 trees were measured at 24 different operations in this study. Field crews measured trees before they were harvested to determine species, size, condition, and merchantability. After the trees were harvested, the crews measured log volumes and assigned products for which they were harvested.

The results of each of these studies help characterize removals within New York for 1993: volume of roundwood removed, kinds of roundwood products harvested, origin of the roundwood removed, species, types of trees and components of trees affected by these removals, and amount and disposition of logging and manufacturing residues generated.

Roundwood statistics are reported in units commonly used for the different products and in cubic feet to show totals for all products. For sawn products, the International 1/4-inch rule was used in reporting board feet. Conversions were made to this Forest Service standard using common log rule formulas (For. Prod. Lab. 1973) and from average log lengths and diameters supplied by the mills.

In this publication we report current wood removals and timber use in New York and track changes that have occurred since the 1979 inventory (Nevel and others 1982). Data are presented at the state, geographic unit, and county level. Figure 1 shows the counties that are within the boundaries of each geographic unit in New York.

Figure 1.--New York counties, by geographic unit.

Wood Removals Exceed 250 Million Cubic Feet

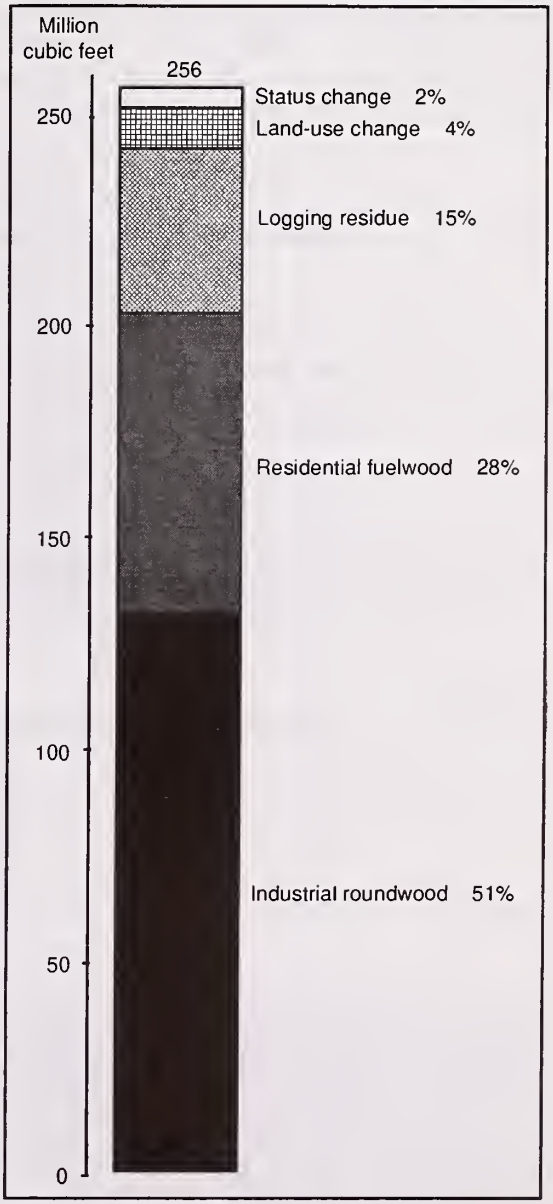
In 1993, an estimated 256 million cubic feet (ft^3) of wood were "removed" from New York's timberlands (Table 1). This includes wood that was removed due to the harvesting of roundwood products, logging residue, land-use change, and status change. Roundwood products include those that generally are considered industrial in nature, for example, sawlogs, veneer logs, and pulpwood, or nonindustrial, such as fuelwood.

During the last inventory in New York, it was estimated that about 3.3 million cords, or 266 million ft^3, of fuelwood were harvested. Residential fuelwood was the leading product removed from New York timberlands, accounting for 65 percent of roundwood removals. The estimate of fuelwood use for the 1994-95 heating season was nearly 890,000 cords, about one-quarter of the 1979 total. By 1993, the proportion of roundwood removed for fuelwood dropped from a 65 to 28 percent and industrial roundwood again became the leading commodity use of forest land in New York. In 1993, industrial roundwood accounted for 51 percent of total removals.

After industrial roundwood and residential fuelwood, the next most important removal was logging residue, which includes all woody material left from harvesting roundwood products. About 15 percent of the volume of timber removed from New York timberlands (39 million ft^3) was attributed to logging residue.

The final two components of total removals, land-use change and status change, are average annual estimates derived from the resource inventory plots. Land-use change is the volume of timber removed when timberland is converted to a nontimberland use, for example, timberland that is cleared for housing. Status change is the volume of timber removed from timber production due to reclassification. Only about 6 percent of total removals in New York was attributed to land-use and status change.

Distribution of components comprising total wood removals



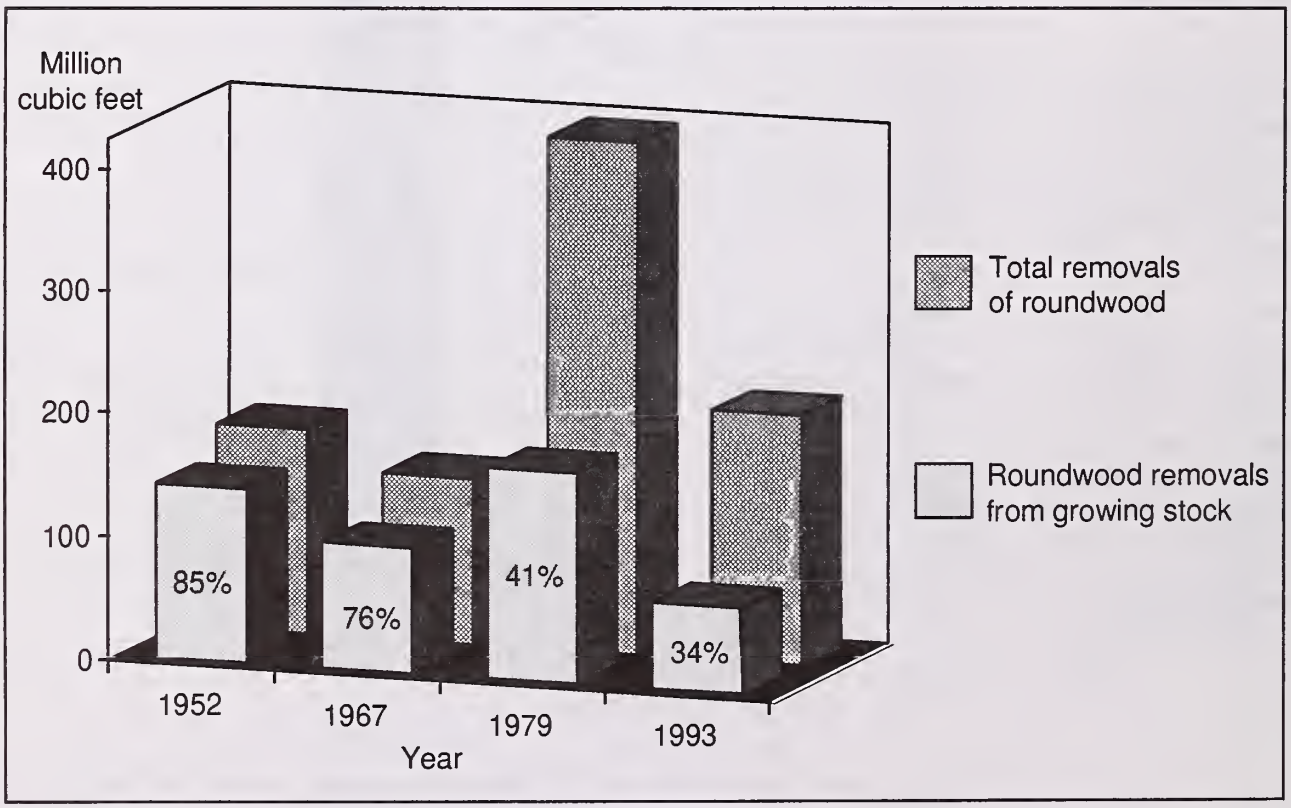
Roundwood Removals from Growing Stock Declined

An important change was in the volume harvested from growing stock. Growing stock is the portion of trees, 5.0 inches in diameter or larger, from a 1-foot stump to a 4.0-inch top diameter outside the bark of the central stem, or to the point where the central stem breaks into branches if that occurs before this point. By 1993, the portion of roundwood removed from growing stock had dropped significantly from previous inventories.

In 1952 and 1967, roundwood removals from growing stock accounted for 85 percent (20 mllllon ft^3) and 76 percent (18 million ft^3), respectively, of the total removals for roundwood products. Little was harvested from other sources, for example, the tops and limbs of trees, cull trees, cull sections, and dead trees. In 1979, removals for roundwood products shot up to about 418 million ft^3, largely due to extensive harvesting of fuelwood. However, only 41 percent of the total was from growing stock. Although there was a decrease in the use of growing stock for industrial roundwood products, fuelwood use also contributed to the decrease in the proportion from growing stock. Wharton (1991) showed that fuelwood comes primarily from cull trees, dead trees, and the like rather than from growing stock.

By 1993, the percentage of roundwood removals from growing stock was 34 percent, or about 69 million ft^3 (Table 2). So while total removals of roundwood has fluctuated from 1952 to 1993, the proportion of roundwood removals from growing stock has declined steadily.

Trends in total roundwood removed and roundwood removed from growing stock



Industrial Roundwood Production Down but Still Strong

The two components of roundwood products, industrial and nonindustrial, have changed in different ways. Fuelwood harvesting had declined sharply since 1979. And while some 20,000 additional landowners may have harvested fuelwood for their own use, for sale, or to be given away, average volumes removed from their forest land likely have declined.

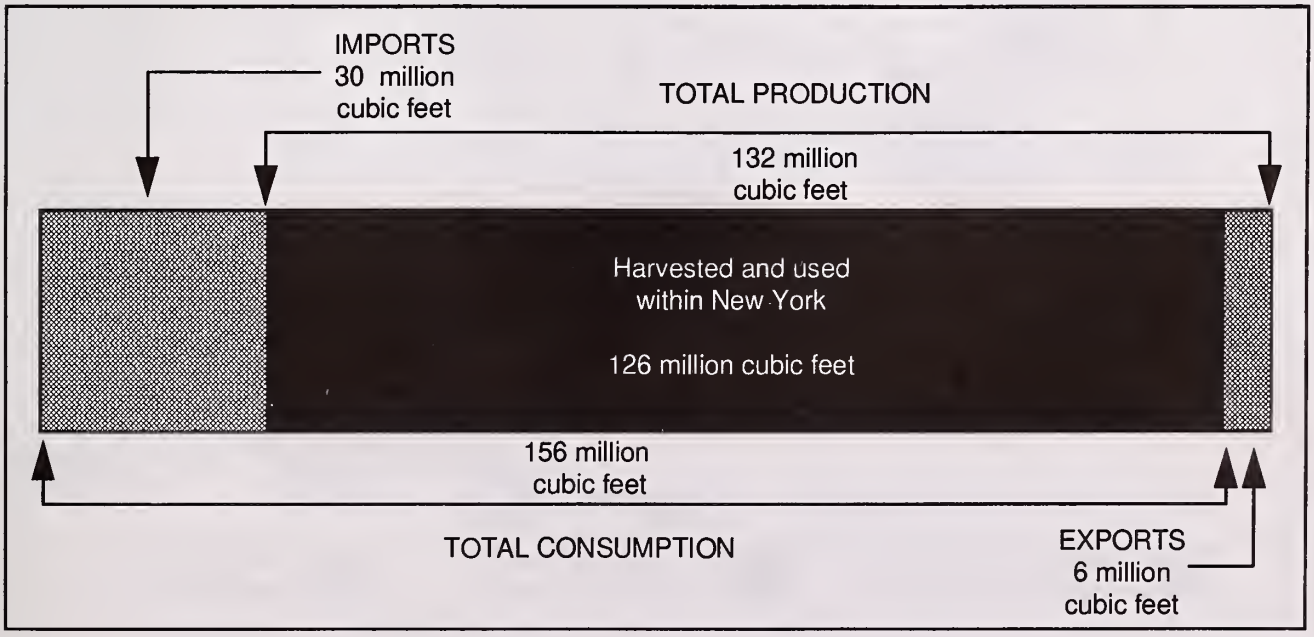
By contrast, New York sawmills received 152 million ft^3 of industrial roundwood from timberlands in 1979 (Nevel and others 1982). Although there were fewer mills in 1993, they received about 132 million ft^3 (Table 3), so receipts did not drop significantly. Average volumes used by the mills probably have increased since 1979.

Industrial roundwood is the primary source of removals in New York, accounting for 79 percent of removals from growing stock. There are two parts to industrial roundwood removals – production and consumption. Production of industrial roundwood refers to the total volume of roundwood that was harvested from land within the boundaries of a specific area, regardless of where it was consumed. Production is the sum of timber harvested and used within the area, plus all roundwood exported.

Consumption of industrial roundwood is the total volume of roundwood that was received at primary wood-using mills within the boundaries of a specific area, regardless of where it was harvested. Consumption is the sum of timber harvested and used by the mills within the area, plus all roundwood imported. Obviously, the key components are volume harvested and used within New York as well as the volume imported to and exported from the state.

In 1993, the 132 million ft^3 of industrial roundwood production included a small amount that was harvested in New York but used by mills outside the state. About 5 percent (6 million ft^3) was exported from the state (Table 4). However, New York was a net importer, receiving far more wood than it exported. Thirty million ft^3 was harvested from timberlands outside the state but used by mills within New York, bringing total consumption in the state to 156 million ft^3 (Table 5).

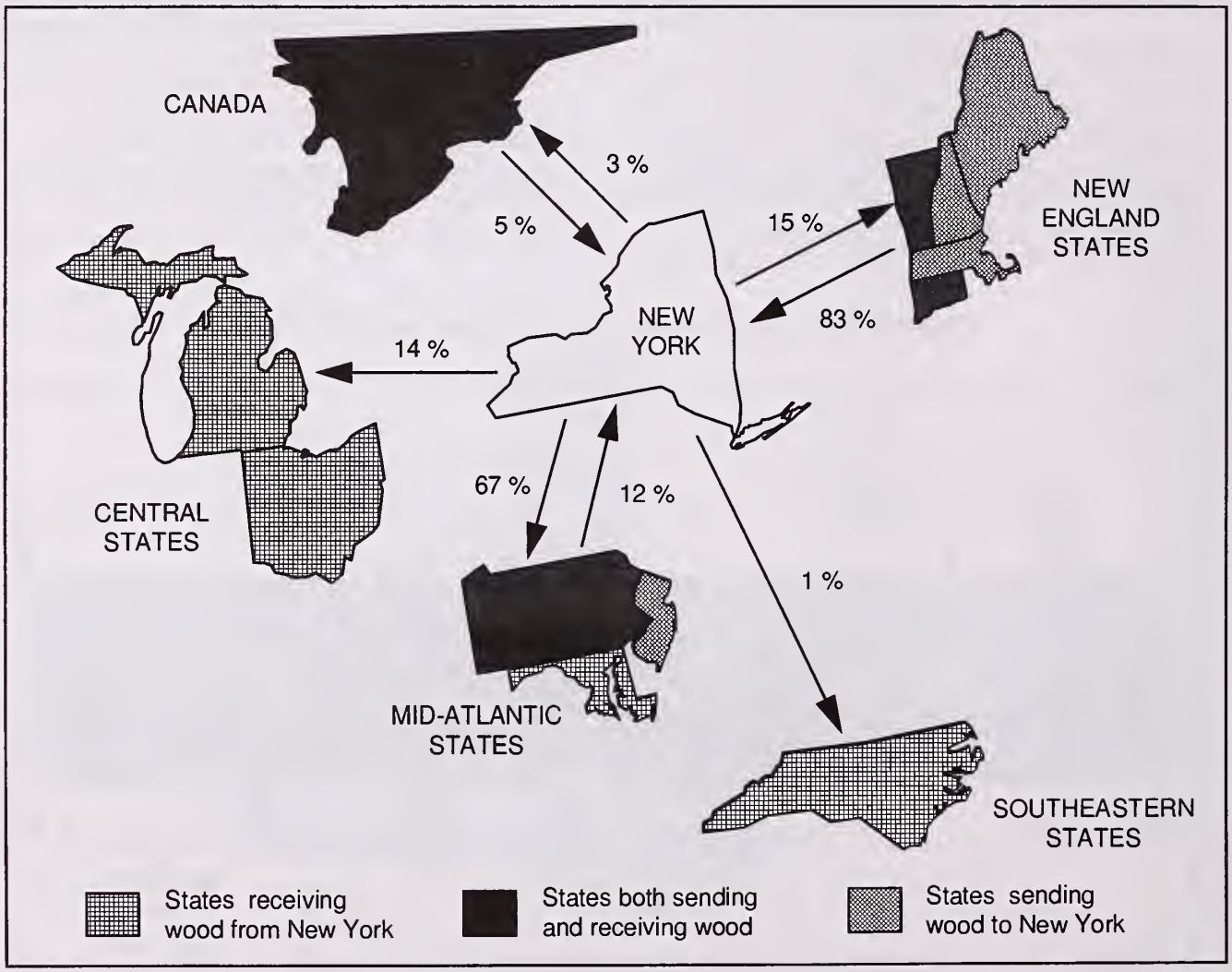
Production and consumption of industrial roundwood



Most Exports to Mid-Atlantic States, Most Imports from New England

Most of the wood that was exported went to the Mid-Atlantic States (Table 4). About 67 percent was sent to mills in Pennsylvania and Maryland, though most of it was used in Pennsylvania. Almost equal amounts went to two Central States (Ohio and Michigan) and to two New England States (Vermont and Connecticut). Small amounts went to mills in Canada and North Carolina. New York mills received most of their imported wood (about 83 percent) from the New England states (Table 5). Only timberlands in Canada and the Mid-Atlantic States (Pennsylvania and New Jersey) provided additional wood for New York mills.

Distribution of exports and imports by destination of shipments

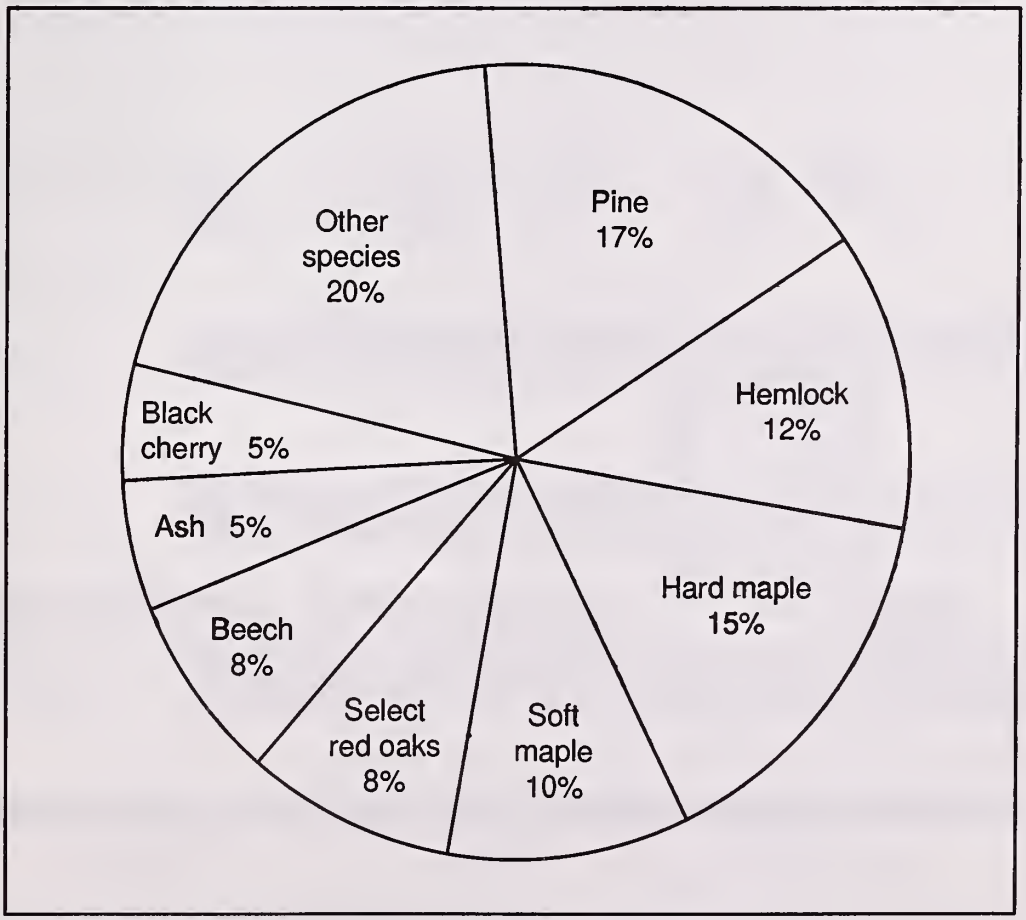


Five Species Groups Accounted for Most Industrial Roundwood Production

Of the species harvested in New York, about 17 percent of timber removals was in pine, primarily eastern white pine, some red pine, and a small amount of pitch pine (Table 6). A significant amount (12 percent) removed was in hemlock. Of the hardwoods, the leading species were hard maple (primarily sugar maple), soft maple (primarily red maple), and select red oak (primarily northern red oak). These five species groups accounted for about 62 percent of species removals in the state. Other important species removed were beech (8 percent), ash (5 percent), and black cherry (5 percent).

In general, the extent to which individual species or species groups are removed is related to the degree to which they exist in the resource base. In New York, this was true for all of the minor species groups harvested and for most of the major ones. However, there were notable exceptions. For example, soft maple was harvested to a lesser extent than the degree to which it exists in the resource base. Soft maple accounted for 14 percent of the volume removed from growing stock but 16 percent of the resource base. Conversely, pine and select red oaks were used to a greater extent than the degree to which they exist in the resource base. Pine accounted for 14 percent of timber removals but only 10 percent of the resource base; select red oak accounted for 9 percent of timber removals but 6 percent of the resource base.

Species distribution of industrial roundwood removals

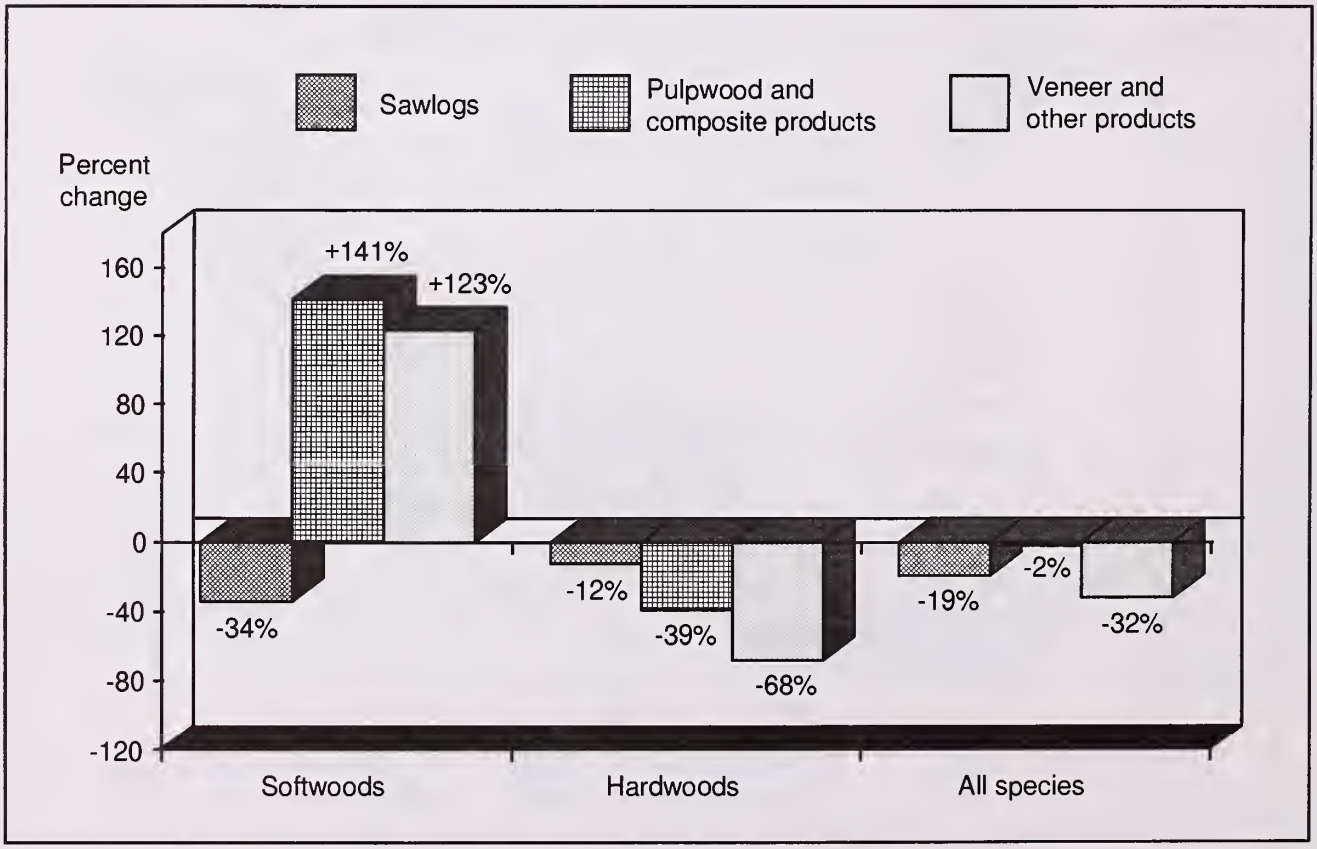


Hardwood Sawlog Production Dominates but Has Declined

More sawlogs were removed from New York timberlands than other roundwood products (Table 3). About a half billion board feet were produced in 1993, or about 56 percent of total production. Pulpwood and composite products followed closely with 41 percent of the production, or nearly 640 million cords. Other products, including veneer, accounted for 3 percent of total production. While hardwood production still controls the lion's share of production with about 84 million ft^3, it had declined from the previous survey by 28 million ft^3. In 1979, production from hardwoods was about 74 percent of total production; by 1993, it had dropped to 64 percent. This occurred in all segments of the hardwood industry. Production of hardwood sawlogs declined by about 12 percent, hardwood pulpwood and composite products by about 39 percent, and hardwood veneer logs and other products by about 68 percent.

Softwood production in 1993 amounted to about 48 million ft^3, an increase from 40 million ft^3 in 1979. The increase in softwood production was largely due to increased production of pulpwood and composite products, which increased 1-1/2 times, and veneer and other products, which increased 1-1/4 times. The softwood increases in these two product groups were offset slightly by a 34-percent decline in the production of softwood sawlogs.

Percent change of industrial roundwood production, 1979 to 1993



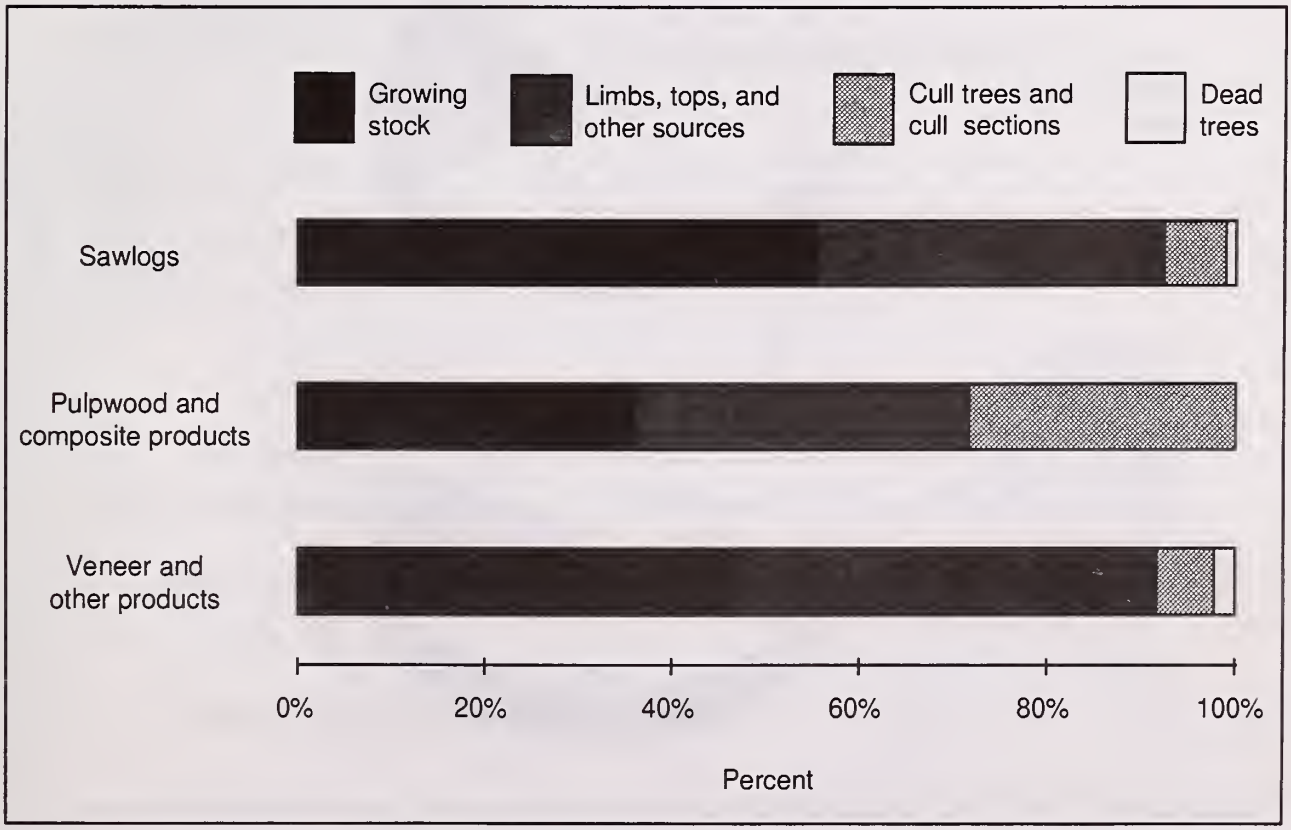
Industrial Roundwood Removals from Growing Stock is Down

The volume of timber removed from the growing-stock portion of trees has declined from previous surveys. In 1993, about half of all woody material removed for industrial roundwood products was from growing stock (Table 6).

Almost 56 percent of the roundwood removed for sawlogs was from growing stock. Pulpwood, which has lower standards for freedom from defect and cull, often is from other sources besides growing stock. Only about 36 percent of the roundwood removed for pulpwood and composite products was from growing stock. More veneer and other products were removed from growing stock than pulpwood. This is due to the influence of other products since veneer typically is removed exclusively from growing stock.

The remaining removals generally were from the limbs and tops of trees that are harvested. However, a significant proportion was from cull trees and cull sections of trees when pulpwood or composite products were removed. More than 28 percent was from these cull sources, nearly equaling the amount from limbs and tops when pulpwood or composite products were removed. Only 6 percent of sawlogs, veneer logs, and other products was removed from cull trees and cull sections. Little was removed from dead trees, regardless of the product.

Distribution of industrial roundwood removals, by source of material

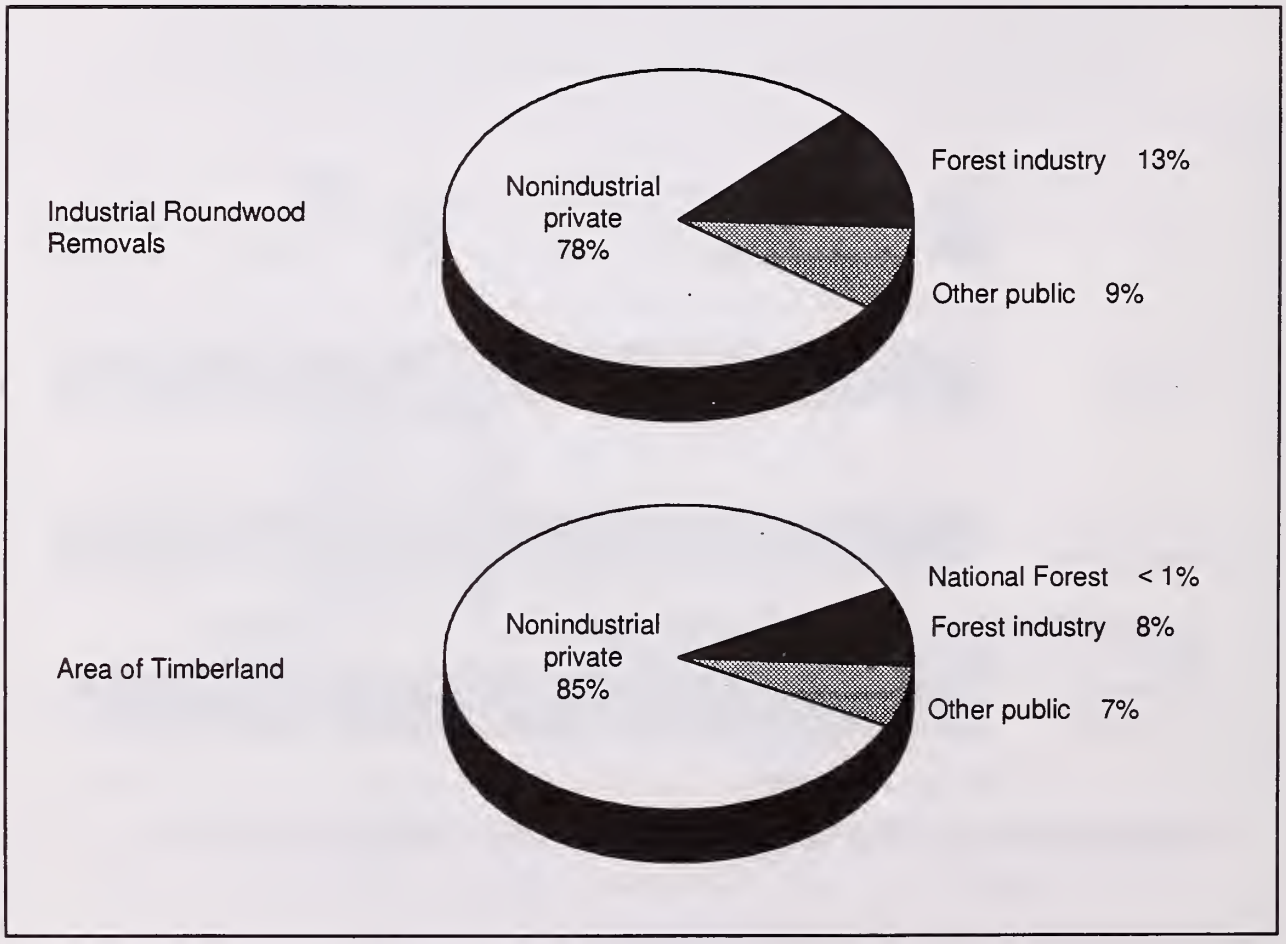


Industrial Roundwood Removals Mostly from Private Land

More than 90 percent of New York's industrial roundwood production was from private land, including nonindustrial private land (78 percent) and forest-industry land (13 percent) (Table 7). Nonindustrial private land, which accounts for 85 percent of the timberland base, is owned by individuals, groups of individuals, corporations, partnerships, clubs, trusts, and the like who do not operate a wood-using plant. Forest-industry land, which accounts for 8 percent of the timberland base and is owned by companies or individuals who operate a wood-using plant, provided a greater portion of industrial roundwood production in relation to the amount of timberland owned.

A small amount of the timber production was from "other" land owners. National Forest land comprises less than 1 percent of the timberland base. Not surprisingly, there was no production from this land in 1993 (though it may have occurred). About 9 percent of the industrial roundwood production was from other public land, which accounted for 7 percent of the timberland base. Other public land is primarily state land, with some county and municipal land, and a small amount of federal (other than Forest Service).

Ownership distribution of industrial roundwood removals and timberland area



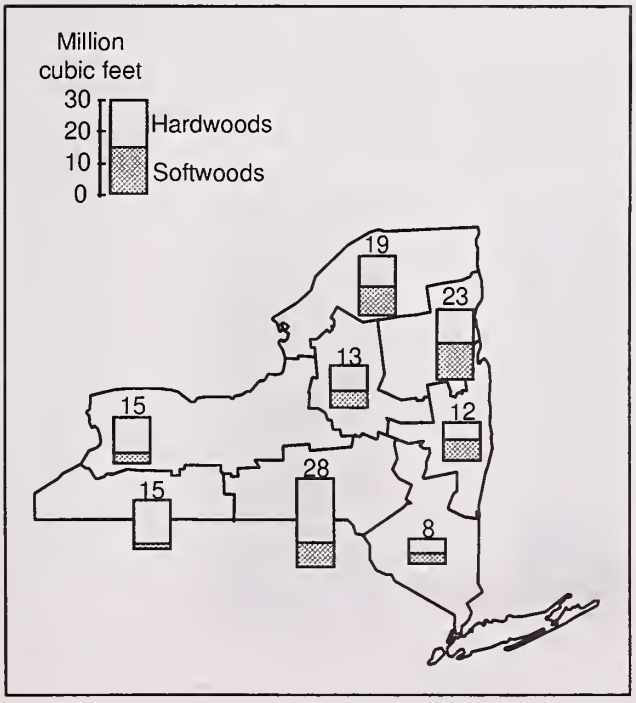
Softwood Region of New York Provided Bulk of Production

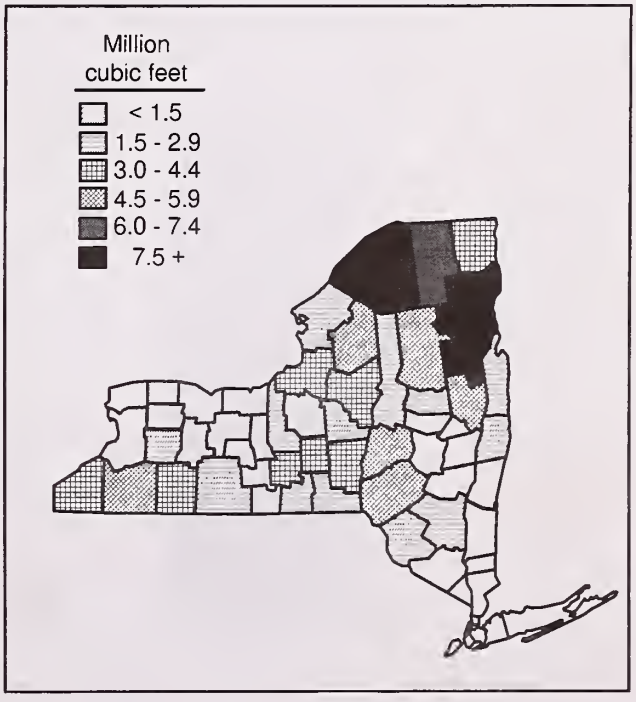
The South-Central Highlands geographic unit of New York supplied about 28 million ft^3 of production (Table 8), followed closely by the Eastern Adirondack unit with 23 million ft^3, and the St. Lawrence-Northern Adirondack unit with 19 million ft^3. Softwood production was most prevalent in the northern units, where the softwood resource is predominantly located. It was not surprising that most of the hardwood production occurred in the southwestern units where the hardwood resource predominates.

The extent of production in northern New York and the southwestern and south-central units can be seen at the county level as well (Table 9). Production of industrial roundwood was greatest in St. Lawrence, Essex, and Warren Counties, with other northern counties like Franklin, Hamilton, Lewis, and Saratoga not far behind. Together, these counties provided at least 4-1/2 million ft^3 of production.

In hardwood-producing southwestern New York, Cattaragus County led all others with 5-1/2 million ft^3 of production, most of which was hardwoods. Counties that produced nearly as much included Allegany and Chautauqua. In south-central New York, Delaware and Otsego Counties led production, though a number of others also contributed significant amounts. The only areas with low timber production were heavily urbanized or predominantly agricultural.

Removals of industrial roundwood, by geographic unit and county





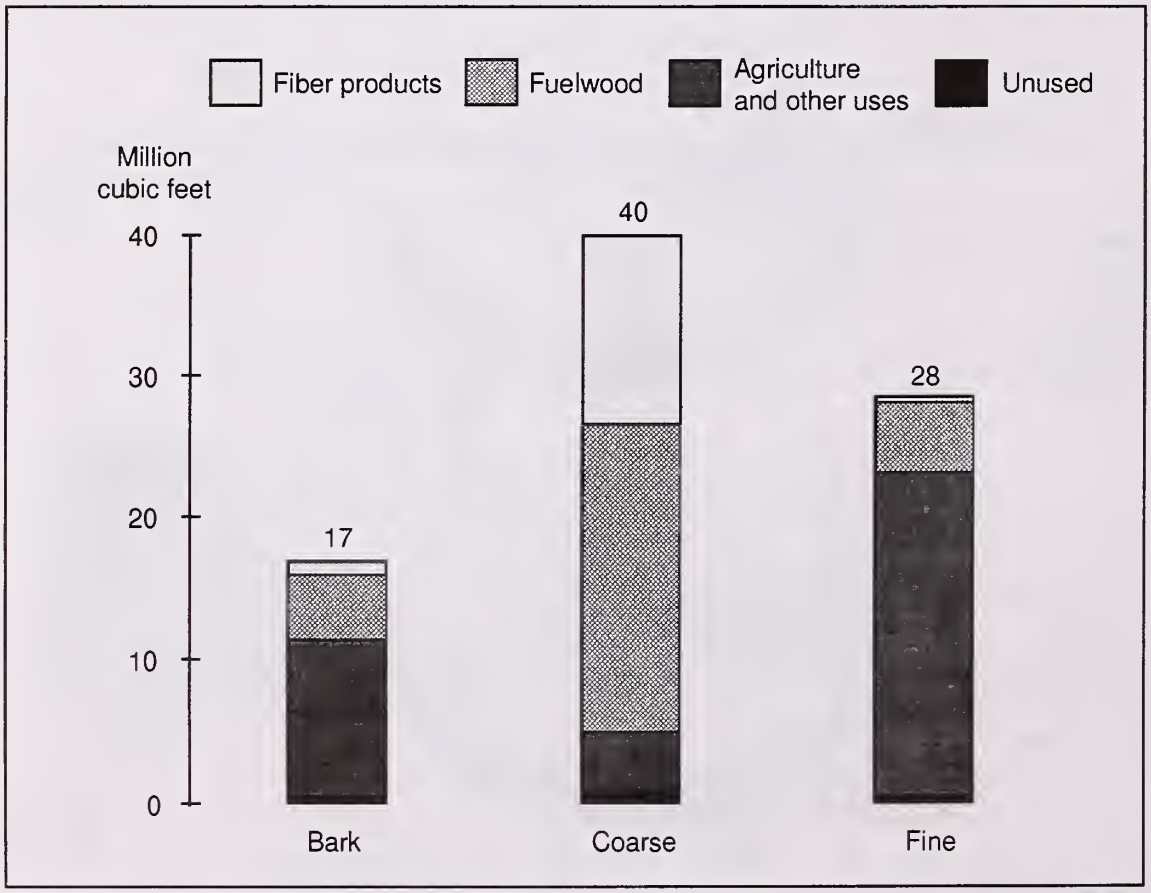
Most Manufacturing Residue Used for Fiber and Fuel

During 1993, New York mills generated more than 85 million ft^3 of residue by processing wood products from roundwood (Table 10). Of this amount, about 17 million ft^3 (20 percent) was bark. Also generated were 40 million ft^3 of coarse residue suitable for chipping and 28 million ft^3 of fine residue too small to be chipped. These latter two kinds of woody residue accounted for 80 percent of all manufacturing residue.

Most mills make maximum use of their manufacturing residue. Since residue no longer can be discarded, some use must be found. In New York during 1993, fuelwood, agriculture, and "other" were the primary end uses. Agriculture and other uses drew mostly from bark and fine residue, accounting for 65 percent of the bark and 80 percent of the fine residue used.

Generally, bark is used for horticultural mulch and fine residue is used for livestock bedding and some mulch. Since it can be chipped and handled more easily, coarse residue is used primarily for fiber products like pulp and composite products, or for residential, commercial, and industrial fuel. More than 13 million ft^3 of coarse manufacturing residue was used in fiber products, and nearly 22 million ft^3 of coarse manufacturing residue was used as fuel in 1993.

Production of manufacturing residue, by product and type of residue



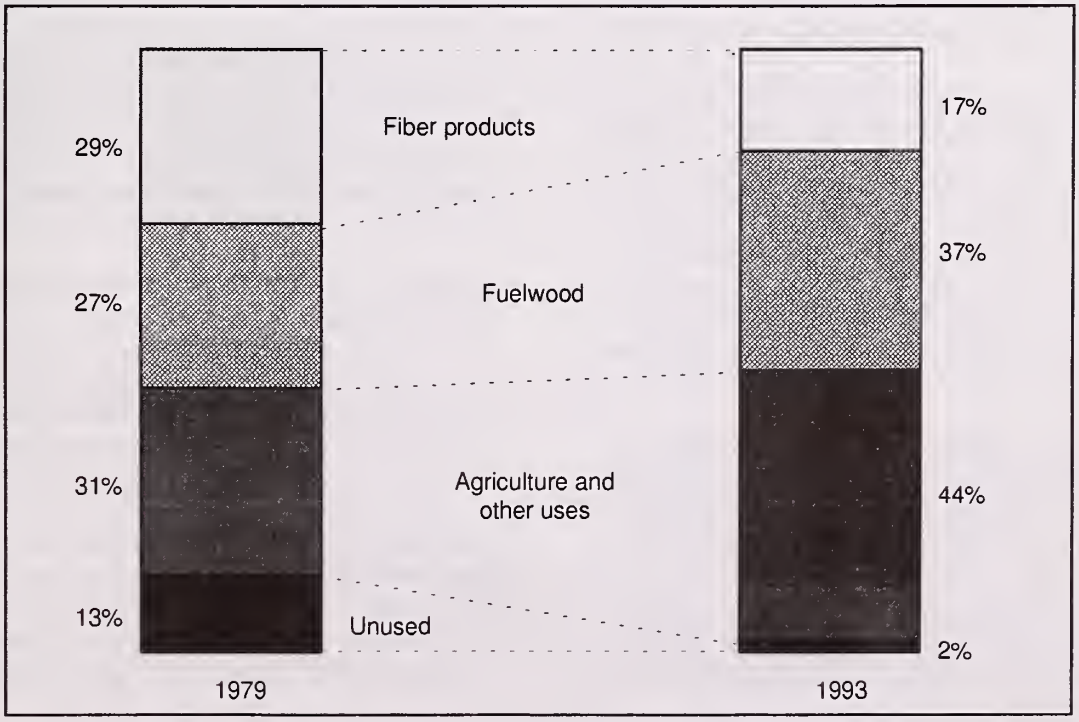
Less Unused Mill Residue

Pulp mills historically have been the largest user of manufacturing residue, primarily because they are in a good economic position to compete for the residue and generally have developed a long-term supply structure that is relatively stable. In 1979, the amount of manufacturing residue used for fiber products held nearly equal footing with the other primary end uses. However, pulpwood production has declined slightly in recent years, as has the amount of manufacturing residue used for fiber products. Production used for fiber dropped from 29 to 17 percent from 1979 to 1993. Only about 14 million ft^3 of manufacturing residue were being used for fiber products in 1993.

Conversely, the proportions of manufacturing residue used for fuelwood, agriculture, and other products have increased. In 1979, fuelwood accounted for 27 percent of the uses of this residue. This figure jumped to 37 percent by 1993, or 32 million ft^3. By far, the largest increase in and total amount of manufacturing residue used were for agriculture and other uses. Production used for these end uses increased from 31 to 44 percent, or nearly 38 million ft^3, due to changes in both pulpwood markets and fuelwood use, and possibly by increased demand for agricultural and other uses.

Another important change in the use of manufacturing residue occurred in the amount left unused. At one time, manufacturing residue was dumped, burned on site (not for fuel), or given away. Today, regulations prohibit disposing of residue by dumping or burning, forcing mills to find economic ways to dispose of residue. The increased use of previously unused residue is a response by many mills, including those in New York, to find economic and environmentally safe methods of disposal. At the time of the 1979 canvass, 13 percent of New York's manufacturing residue was left unused; by 1993, only 2 percent was unused.

Change in distribution of manufacturing residue end uses



Definitions

Board foot–A unit of measure applied to roundwood. It relates to lumber that is 1 foot long, 1 foot wide, and 1 inch thick (or its equivalent).

Bolt–A primary forest product that is harvested in short, mostly 4- or 6-foot lengths. No clear distinction can be drawn among bolt, billet, and block.

Coarse residue–Manufacturing residue that can be chipped, for example, slabs, edgings, trimmings, miscuts, and veneer cores and clippings.

Commercial fuelwood–A roundwood product, with or without bark, that is used to generate energy at nonmanufacturing facilities such as schools, correctional institutions, and electrical generating plants.

Composite product–A roundwood product that is reduced by mechanical means to wood chips, curls, flakes, shavings, sawdust, etc., and then combined with a synthetic resin or other suitable binders to make a generic group of panels such as flakeboard, oriented-strand board, particleboard, and waferboard.

Consumption–The total volume of roundwood that was received at primary wood-using mills within the boundaries of a specified area, regardless of where it was harvested. Consumption is the sum of timber harvested and used by the mill within the area, plus all roundwood imported.

Cooperage–A roundwood product from which containers are made, consisting of two round heads and a body composed of staves held together by hoops, such as barrels and kegs. Cooperage is manufactured into two kinds of containters. Containers from slack cooperage are used for dry, semi-dry, or solid products; their staves are not fitted closely. Containers from tight cooperage are used for liquids, semi-solids, and heavy solids; their staves are held tightly together.

Cord equivalent–A unit of measure applied to forms of wood other than roundwood. It relates to chips, slabs, edgings, and other manufacturing residues equal to 85 cubic feet of solid wood or 1 standard cord.

Dimension stock–a roundwood product sawed into material of varying sizes to make optimum use of the raw material.

Exports–The total volume of roundwood consumed outside the boundaries of a specified area that originated from within those boundaries.

Fine residue–Manufacturing residue that cannot be chipped, for example, sawdust, shavings, and pulp screening.

Hardwoods–Dictyledonous trees, usually broadleaved and deciduous.

Imports–The total volume of roundwood consumed within the boundaries of a specified area that originated from outside those boundaries.

Industrial forest product–Roundwood that is supplied to primary wood-using mills. Does not include roundwood that has been harvested for industrial or commercial fuelwood, or for personal use such as residential fuelwood.

Industrial fuelwood–A roundwood product, with or without bark, that is used to generate energy at a manufacturing facility such as a wood-using mill.

International 1/4-inch rule–A log rule or formula for estimating the board-foot volume of logs, allowing one-half inch of taper for each 4-foot length. The rule appears in a number of forms that allow for kerf. In this form, one-quarter inch kerf is assumed. The mathematical formula is:

$$(0.22D^2 - 0.71D)(0.904762)$$

for 4-foot sections, where D = diameter inside bark at the small end of the log section. This rule is used as the USDA Forest Service standard log rule in the Eastern United States.

Log–A primary forest product that is harvested in long, mostly 8-foot lengths.

Log rule–Tables or formulas that estimate or calculate the amount of lumber in board feet that can be sawn from logs of given length and top diameter inside the bark. Also called log scale.

Manufacturing residue–bark and woody material generated when roundwood is processed The woody material is coarse or fine depending on its suitability for wood chips. If these residues are used, they are referred to as a plant byproduct.

Nonindustrial byproduct–Manufacturing residue that is recycled but not used by a primary wood-using mill, such as manufacturing residue used for agricultural purposes or unused manufacturing residue.

Nonindustrial forest product–Roundwood harvested for industrial or commercial fuel production, or for personal use such as firewood.

Piling–A roundwood product, relatively slender, that is used as structural support, driven or otherwise buried in the ground to provide vertical or lateral support in building foundations, bridges, docks, and other such structures that are built in soft, wet, or submerged sites.

Plant byproducts–A wood product, such as pulp chips, that is recycled from manufacturing residue.

Pole–A roundwood product that is used as structural support, driven or otherwise buried in the ground to provide vertical or lateral support for electric power and telephone transmission lines.

Post–A roundwood product, relatively short and usually straight, that is used to support fence structures.

Primary forest product–Roundwood that is harvested for industrial forest products or for personal use.

Primary wood-using mill–A manufacturing facility that converts roundwood into wood products such as lumber, pulp, veneer, cooperage, and dimension products. The final product may be used as manufactured or sent to a secondary wood-using mill for furthur manufacture.

Production–The total volume of roundwood that was harvested from land within the boundaries of a specified area, regardless of where it was consumed. Production is the sum of timber harvested and used within the area, plus all roundwood exported.

Pulpwood–A roundwood product that has been reduced to individual wood fibers by chemical or mechanical means. The fibers are used to make a generic group of pulp products such as paper, fiberboard, and insulating board.

Residential fuelwood–A roundwood product, usually with bark, that is used in fireplaces and home wood-fired boilers for heat.

Roundwood–Logs, bolts, and other round, split, or chipped timber products generated by harvesting trees for industrial or consumer use.

Sawlog–A roundwood product from which products such as lumber are sawn. It is cut to standard sizes and meets minimum standards of diameter and length (including a minimum 8-foot length), and meets maximum standards for combinations of size and defect specified in regional standards. Products from sawlogs are manufactured by sawing, resawing, passing lengthwise through a standard planing machine, crosscutting to length, or matching to produce different kinds of lumber.

Softwoods–Coniferous trees, usually evergreen and having needles or scale-like leaves.

Standard cord–A unit of measure applied to roundwood, usually bolts or split wood. It relates to a stack of wood 4 feet high, 4 feet wide, and 8 feet long–encompassing 128 cubic feet of wood, bark, and air space. In the Northeast, this usually translates to 80 cubic feet of solid wood for fuelwood and 85 cubic feet of solid wood for pulpwood, since pulpwood is more uniform. A standard cord often is referred to as a cord, but should not be confused with a face cord that is commonly used in firewood marketing.

Veneer–A roundwood product from which a thin layer or sheet of wood of uniform thickness is produced by peeling (rotary cut), slicing, or sawing. It is manufactured into glued wood panels made up of crossbanded layers, or piles that generally are at right angles to each other. Veneer is a broad generic group that includes a variety of single- and multi-ply products such as composite panels, containers, interior/exterior plywood, face veneer, and specialty products.

Whole-tree chips–Unbarked wood chips generated by harvesting and chipping some portion of aboveground tree components.

Sources for definitions include Ford-Robertson (1971), Simmons (1979), U.S. Dep. Agric. (1987), and the USDA Forest Service's Forest Survey Handbook.

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NOTE: row and column totals in the tables may not add due to rounding.

Table 1. Total wood removals, by species group[a] and class of removals, New York, 1993

(in thousand cubic feet)

Species group	Removals due to harvesting				Status change	Total removals
	Roundwood	Logging residue	Land-use change	Total		
Pine	22,405	2,587	420	25,413	33	25,446
Other softwoods[b]	25,541	2,928	774	29,243	--	29,243
All softwoods	47,946	5,516	1,196	54,656	33	54,689
Ash	12,746	2,712	1,111	16,569	278	16.847
Aspen and cottonwood	7,019	1,502	615	9,136	174	9.310
Basswood	3,226	686	63	3,975	--	3,975
Beech	18,690	3,990	173	22,853	234	23.087
Black cherry	11,127	2,371	1,014	14,512	34	14,546
Elm	1,193	255	187	1,635	63	1,698
Hickory	1,752	372	510	2,634	638	3.272
Black locust	714	152	181	1,046	--	1,046
Hard maple	36,449	7,782	591	44,822	345	45,167
Soft maple	24,223	5,161	2,007	31,392	462	31.854
Select white oak	3,312	704	369	4,384	283	4,667
Other white oak	1,285	273	152	1,710	535	2.245
Select red oak	20,877	4,440	296	25,613	453	26,066
Other red oak	1,337	284	533	2,154	732	2,886
Black walnut	426	90	60	580	25	605
Yellow-poplar	2,206	468	206	2,880	--	2,880
Other hardwoods[b]	8,777	1,881	638	11,296	137	11,433
All hardwoods	155,358	33,124	8,708	197,190	4,393	201,583
All species	203,304	38,640	9,902	251,846	4,426	256,272

[a]Fuelwood removals by species were assumed to mirror the industrial roundwood species distribution for hardwoods.
[b]Includes fir, spruce, redcedar, northern white-cedar, tamarack, and hemlock.
[c]Includes birch, butternut, cucumbertree, gum, and willow.

Table 2. Total wood removals, by class of removals and source of material, New York, 1993

(in thousand cubic feet)

Class of removals	Source of material		All sources
	Growing stock	Nongrowing stock	
Roundwood products	68,527	134,777	203,304
Logging residue	4,300	34,339	38,640
Land-use change	--	9,902	9,902
Status change	2,901	1,525	4,426
All classes	75,728	180,544	256,272

Table 3. Roundwood removals, by primary product group and major species group, in standard units[a] and in common units, New York, 1993.

Primary product group	Softwoods		Hardwoods		All groups	
	Standard units	Thousand cubic feet	Standard units	Thousand cubic feet	Standard units	Thousand cubic feet
Sawlogs	134,724	18,288	421,821	56,183	556,545	74,471
Veneer logs	19,750	1,450	9,272	1,273	20,022	2,723
Pulpwood[b]	324,516	27,584	315,027	26,778	639,543	54,361
Fuelwood[c]	--	--	889,015	71,121	889,015	71,121
Poles, posts, and pilings	380	380	--	--	380	380
Other products	244	244	5	5	248	248
All products	--	47,946	--	155,358	--	203,304

[a]Standard units for sawlogs and veneer logs are thousand board feet (International 1/4-inch rule); pulpwood and fuelwood are standard cords; poles, posts, pilings, and other products are thousand cubic feet. A standard cord of pulpwood is equivalent to 85 cubic feet of solid wood and a standard cord of fuelwood is equivalent to 80 cubic feet of solid wood.

[b]Includes composite (engineered) products.

[c]Source: New York State Dep. of Environ. Conserv. (1995).

Table 4. Production of industrial roundwood removals, by destination of shipments and major species group, New York, 1993

(in thousand cubic feet)

Destination of shipments	Softwoods	Hardwoods	All species
Harvested and used within New York	47,147	78,575	125,722
Exported to Northeastern States:			
Connecticut	--	7	7
Maryland	--	82	82
Ohio	--	718	718
Pennsylvania	315	3,950	4,265
Vermont	274	690	965
Exported to other states[a]	209	48	258
Exported to Canada[b]	--	165	165
Total exports	799	5,662	6,461
Total production	47,946	84,237	132,183

[a]Includes Michigan and North Carolina.
[b]The volume of roundwood harvested from New York timberlands and exported to countries other than Canada are not included because overseas shipments are difficult to track.

Table 5. Consumption of industrial roundwood removals, by origin of shipments and major species group, New York, 1993

(in thousand cubic feet)

Origin of shipments	Softwoods	Hardwoods	All species
Harvested and used within New York	47,147	78,575	125,722
Imported from Northeastern States:			
Connecticut	526	240	765
Maine	674	--	674
Massachussetts	1,132	245	1,377
New Hampshire	6,158	157	6,315
New Jersey	12	195	207
Pennsylvania	165	3,083	3,248
Vermont	12,595	2,904	15,499
Imported from Canada	1,647	--	1,647
Total imports	22,909	6,824	29,733
Total consumption	70,056	85,399	155,455

Table 6. Removals of industrial roundwood, by species group and source of material, New York, 1993

(in thousand cubic feet)

Species group	Growing stock	Cull trees and sections	Dead trees	Other sources	All sources
Pine	9,659	3,078	26	9,643	22,405
Other softwoods[a]	10,909	3,612	30	10,990	25,541
All softwoods	20,568	6,690	56	20,633	47,946
Ash	3,593	927	81	2,310	6,911
Aspen and cottonwood	1,760	804	29	1,213	3,806
Basswood	910	234	20	585	1,749
Beech	4,933	1,809	95	3,297	10,134
Black cherry	3,024	960	63	1,986	6,033
Elm	304	130	5	208	647
Hickory	506	111	12	321	950
Black locust	202	50	5	130	387
Hard maple	9,574	3,589	182	6,418	19,763
Soft maple	6,646	2,007	141	4,341	13,134
Select white oak	959	207	23	607	1,796
Other white oak	370	84	9	235	697
Select red oak	5,886	1,518	132	3,784	11,320
Other red oak	387	84	9	245	725
Black walnut	130	18	3	80	231
Yellow-poplar	670	96	17	413	1,196
Other hardwoods[b]	2,126	1,104	31	1,497	4,759
All hardwoods	41,979	13,732	858	27,669	84,237
All species	62,546	20,421	914	48,302	132,183

[a]Includes fir, spruce, redcedar, northern white-cedar, tamarack, and hemlock.
[b]Includes birch, butternut, cucumbertree, gum, and willow.

Table 7. Removals of industrial roundwood, by ownership class and major species group, New York, 1993

(in thousand cubic feet)

Ownership class	Softwoods	Hardwoods	All species
National Forest	--	--	--
Other public	4,397	7,875	12,272
Forest industry	7,373	10,449	17,823
Nonindustrial private	36,176	65,913	102,089
All owners	47,946	84,237	132,183

Table 8. Removals of industrial roundwood, by geographic unit and major species group, New York, 1993

(in thousand cubic feet)

Geographic unit	Softwoods	Hardwoods	All species
St. Lawrence-Northern Adirondack	9,098	9,870	18,967
Lake Plain	3,129	11,384	14,513
Western Adirondack	5,188	8,162	13,351
Eastern Adirondack	11,687	10,823	22,510
Southwest Highlands	1,597	13,640	15,237
South-Central Highlands	7,645	20,034	27,679
Capitol District	6,473	5,464	11,937
Catskill-Lower Hudson	3,128	4,860	7,989
All units	47,946	84,237	132,183

Table 9. Removals of industrial roundwood, by county, geographic unit, and major species group, New York, 1993

(in thousand cubic feet)

County and geographic unit	Softwoods	Hardwoods	All species
Clinton	1,901	1,086	2,988
Franklin	3,276	3,618	6,894
Jefferson	898	613	1,510
Saint Lawrence	3,023	4,553	7,576
St. Lawrence-Northern Adirondack	9,098	9,870	18,967
Cayuga	142	1,426	1,567
Erie	261	784	1,045
Genesee	9	257	266
Livingston	39	427	467
Madison	1,001	1,482	2,484
Monroe	5	459	464
Niagra	--	13	13
Onondaga	230	346	576
Ontario	35	650	685
Orleans	5	134	139
Oswego	1,140	2,676	3,816
Seneca	58	139	196
Wayne	82	608	690
Wyoming	117	1,836	1,953
Yates	5	147	152
Lake Plain	3,129	11,384	14,513
Fulton	1,193	1,460	2,653
Herkimer	663	1,057	1,720
Lewis	2,276	2,839	5,114
Oneida	1,057	2,807	3,864
Western Adirondack	5,188	8,162	13,351
Essex	5,268	3,001	8,269
Hamilton	1,222	4,433	5,655
Warren	5,197	3,389	8,586
Eastern Adirondack	11,687	10,823	22,510

(continued)

Table 9 (Continued)

County and geographic unit	Softwoods	Hardwoods	All species
Allegany	489	2,675	3,164
Cattaraugus	368	5,140	5,508
Chataqua	262	4,090	4,352
Steuben	478	1,735	2,213
Southwest Highlands	1,597	13,640	15,237
Broome	842	1,733	2,575
Chemung	59	943	1,001
Chanango	1,307	3,073	4,380
Cortland	1,563	2,164	3,727
Delaware	1,371	4,551	5,922
Otsego	1,940	2,808	4,748
Schuyler	232	562	794
Tioga	100	2,623	2,723
Tompkins	230	1,579	1,809
South-Central Highlands	7,645	20,034	27,679
Albany	159	185	344
Columbia	423	800	1,222
Montgomery	436	221	657
Rensselaer	1,096	771	1,867
Saratoga	2,554	2,073	4,627
Schenectady	25	66	92
Washington	1,781	1,348	3,129
Capitol District	6,473	5,464	11,937
Dutchess	265	323	588
Greene	401	899	1,300
Nassau	--	--	--
Orange	34	341	375
Putnam	51	60	111
Rockland	--	--	--
Schoharie	745	580	1,325
Suffolk	--	--	--
Sullivan	1,098	1,457	2,556
Ulster	534	1,200	1,734
Westchester	--	--	--
Catskill-Lower Hudson	3,128	4,860	7,989
All counties and units	47,946	84,237	132,183

Table 10. Amount and disposition of manufacturing residue, by residue type, end use, and major species group, New York, 1993

(in thousand cubic feet)

Residue type and end use	Softwoods	Hardwoods	All species
Bark			
Fiber products	245	686	931
Fuelwood	797	3,712	4,509
Agriculture and other uses	1,203	9,694	10,898
Not used	252	243	495
Total bark	2,497	14,336	16,833
Coarse[a]			
Fiber products	1,849	11,559	13,408
Fuelwood	6,910	14,736	21,647
Agriculture and other uses	424	3,591	4,015
Not used	337	579	916
All uses	9,521	30,465	39,986
Fine[b]			
Fiber products	110	49	159
Fuelwood	441	4,582	5,023
Agriculture and other uses	6,572	16,038	22,611
Not used	169	310	479
All uses	7,292	20,980	28,272
All types			
Fiber products	2,204	12,294	14,498
Fuelwood	8,148	23,030	31,179
Agriculture and other uses	8,200	29,323	37,523
Not used	757	1,132	1,890
All uses	19,309	65,781	85,090

[a]Includes slabs, edgings, veneer cores, and other material suitable for chipping.
[b]Includes sawdust, shavings, and other material unsuitable for chipping.

Table 11. Output of timber products, by primary product group, and major species group, New York, 1993

(in thousand cubic feet)

Primary product and major species groups	Output from:		Total output
	Roundwood	Byproducts	
	INDUSTRIAL PRODUCTS		
Sawlogs			
Softwoods	18,288	--	18,288
Hardwoods	56,183	--	56,183
Total	74,471	--	74,471
Veneer logs			
Softwoods	1,450	--	1,450
Hardwoods	1,273	--	1,273
Total	2,723	--	2,723
Pulpwood[a]			
Softwoods	27,584	2,204	29,788
Hardwoods	26,778	12,294	39,072
Total	54,361	14,498	68,859
Other products[b]			
Softwoods	624	--	624
Hardwoods	5	--	5
Total	628	--	628
All industrial products			
Softwoods	47,946	2,204	50,150
Hardwoods	84,237	12,294	96,531
Total	132,183	14,498	146,681
	NONINDUSTRIAL PRODUCTS		
Fuelwood			
Softwoods	--	8,148	8,148
Hardwoods	71,121	23,030	94,151
Total	71,121	31,179	102,300
All products[d]			
Softwoods	47,946	10,352	58,298
Hardwoods	155,358	35,324	190,682
Total	203,304	45,676	248,981

[a]Includes composite (engineered) products.
[b]Includes posts, poles, pilings, and miscellaneous products.
[c]Source: New York State Dep. of Environ. Conserv. (1995).
[d]Does not include nonindustrial byproducts other than those used for fuelwood.

Table 12. Output of timber products, by primary product group, major species group, and source of material,[a] New York, 1993

(in thousand cubic feet)

Primary product and major species group	Growing-stock trees			Cull trees or sections	Dead trees	Other sources	All sources
	Pole-timber	Saw-timber	Total				
			INDUSTRIAL PRODUCTS				
Sawlogs							
Softwoods	--	9,602	9,602	789	--	7,897	18,288
Hardwoods	22	31,794	31,816	4,048	839	19,479	56,183
Total	22	41,396	41,418	4,837	839	27,376	74,471
Veneer logs							
Softwoods	--	762	762	63	--	626	1,450
Hardwoods	--	721	721	92	19	441	1,273
Total	--	1,482	1,482	154	19	1,067	2,723
Pulpwood							
Softwoods	--	10,133	10,133	5,792	--	11,659	27,584
Hardwoods	842	8,599	9,441	9,589	--	7,747	26,777
Total	842	18,732	19,574	15,381	--	19,406	54,361
Other products							
Softwoods	--	71	71	46	56	450	623
Hardwoods	0	1	1	2	--	2	5
Total	0	72	72	48	56	452	628
All indusrial products							
Softwoods	--	20,568	20,568	6,690	56	20,633	47,946
Hardwoods	864	41,114	41,978	13,732	858	27,669	84,237
Total	864	61,682	62,546	20,421	914	48,302	132,183
			NONINDUSTRIAL PRODUCTS				
Fuelwood							
Softwoods	--	--	--	--	--	--	--
Hardwoods	522	5,459	5,981	18,804	20,796	25,540	71,121
Total	522	5,459	5,981	18,804	20,796	25,540	71,121
All products							
Softwoods	--	20,568	20,568	6,690	56	20,633	47,946
Hardwoods	1,386	46,573	47,959	32,536	21,654	53,209	155,358
Total	1,386	67,141	68,527	39,225	21,710	73,842	203,304

[a]Growing-stock trees, cull trees or sections, and dead trees are from timberland only. Other sources include trees less than 5.0 inches in diameter at breast height, tree tops and limbs from timberland, and material from nontimberland or nonforest land such as fencerows, pastureland, and urban areas.

Table 13. Timber removals from growing stock and sawtimber on timberland, by component and major species group, New York, 1993

Component of timber removals	Growing stock			Sawtimber		
	Softwoods	Hardwoods	Total	Softwoods	Hardwoods	Total
	thousand cubic feet			*thousand board feet*[a]		
Roundwood products						
Sawlogs	9,602	31,816	41,419	51,049	145,892	196,941
Veneer	762	721	1,482	4,073	3,212	7,286
Pulpwood[b]	10,133	9,441	19,573	29,266	20,605	49,870
Fuelwood	--	5,981	5,981	--	13,260	13,260
Other products[c]	71	1	71	266	2	268
All products	20,568	47,960	68,527	84,653	182,971	267,625
Logging residue[d]	1,208	3,092	4,300	1,838	2,454	4,291
Status change	21	2,880	2,901	29	4,643	4,672
Total timber removals	21,797	53,931	75,728	86,520	190,068	276,588

[a]International 1/4-inch rule.
[b]Includes composite (engineered) products.
[c]Includes posts, poles, piling, and miscellaneous products.
[d]Does not include material from tree tops and limbs.

Table 14. Production of nonindustrial byproducts,[a] by type of residue and major species group, New York, 1993

(in thousand cubic feet)

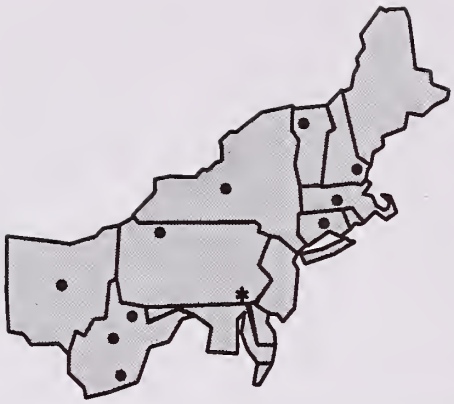
Type of residue	Agricultural and other uses			Not used			All nonindustrial byproducts		
	Soft-woods	Hard-woods	All species	Soft-woods	Hard-woods	All species	Soft-woods	Hard-woods	All species
Bark	1,203	9,694	10,898	252	243	495	1,455	9,937	11,393
Coarse[b]	424	3,591	4,015	337	579	916	761	4,170	4,931
Fine[c]	6,572	16,038	22,611	169	310	479	6,741	16,348	23,090
All types	8,200	29,323	37,523	757	1,132	1,890	8,957	30,455	39,413

[a]Excludes nonindustrial byproducts used for fuelwood.
[b]Includes slabs, edgings, veneer cores, and other material suitable for chipping.
[c]Includes sawdust, shavings, and other material unsuitable for chipping.

Wharton, Eric H.; Martin, Thomas D., Widmann, Richard H. 1998. **Wood Removals and Timber Use in New York, 1993.** Resour. Bull. NE-141. Radnor, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station. 28 p.

Evaluates removals and timber output of New York. Results are based on a survey of primary processing mills located in the state, and of mills in other states that used wood from New York. Incorporates additional studies conducted during standard statewide forest inventories. Contains statistics of industrial roundwood production and the production and final end use of manufacturing residues. Comparisons are made between historical and current data, and trends in both industrial and nonindustrial forest products are noted. Contains graphics and statistical tables.

Keywords: forest inventory; production, consumption, industrial forest products, nonindustrial forest products, manufacturing residue, removals.



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